

# Total Coliform Rule Sample Siting Plan

System Name \_\_\_\_\_

PWSID # \_\_\_\_\_

Date \_\_\_\_\_

## **Why do I need to develop a Total Coliform Rule site sampling plan?**

The purpose of this plan is to specify where in the distribution system routine bacteriological samples will be drawn to ensure they are representative of your system. The original should be kept on-site for use by sampling personnel, review during sanitary surveys, and updates as needed.

## **Where to submit**

Send a copy of your TCR sample siting plan via mail, e-mail, or fax to:

EPA Region 8  
Drinking Water Program 8P-W-DW  
1595 Wynkoop Street  
Denver, CO 80202  
Attn: Bre Bockstahler  
Fax: (877) 876-9101  
Email: R8DWU@epa.gov

## **General Requirements**

### **How to choose a laboratory:**

Laboratories must be certified for the specific contaminant. For a list of certified labs, visit our website: <http://www2.epa.gov/region8-waterops> and click the certified lab link.

### **Reporting deadlines:**

Results of all required monitoring must be submitted to EPA Region 8 within the first ten days following the end of the required monitoring period.

### **Process for re-evaluating sample points:**

Be sure to review sample sites described in the sampling plans and updated to account for system changes (such as population growth, new sources or change in treatment). Strive to review and update this plan annually to incorporate changes as well as review after your latest sanitary survey. Any changes should be sent to our office as soon as you are aware.

### **Sample site distribution and rotation:**

Routine TCR samples must represent the entire distribution system and should be rotated to different locations within the system if possible. This method allows for coverage of the distribution system without increasing the need for additional samples. Be sure to take into account non-permanent sources (seasonal or interim). These sources need to have representation within your siting plan.

Explain how you are rotating the location of your sample sites to ensure your distribution system is represented:

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Does the water system have multiple (completely separated) distribution systems? ☐ No ☐ Yes; How many? \_\_\_\_\_

Are all distribution systems represented in your sample siting plan? If not, be sure to adjust your sampling locations.

### **Routine Monitoring Requirement**

Number of routine total coliform samples required: \_\_\_\_\_ ☐ Monthly or ☐ Quarterly

Unless otherwise specified in your monitoring and reporting requirements, most systems will have the general monitoring schedule seen in **attachment A** of this document.

Use the chart below and fill out the sample site location for the particular month or quarter you need to monitor for. The following is an example for a system with one sample required per month/quarter. Attach additional charts or pages as needed. See **attachment B** for examples.

	<u>Routine sample location</u>	<u>Repeat sample locations</u>	<u>GWR source locations</u> (If required-any source(s) running during TC+ must be sampled)
<b>January (or 1Q)</b>		1) (same as routine location)	1)
		2)	2)
		3)	3)
		4)	4)
<b>February</b>		1) (same as routine location)	1)
		2)	2)
		3)	3)
		4)	4)
<b>March</b>		1) (same as routine location)	1)
		2)	2)
		3)	3)
		4)	4)
<b>April (or 2Q)</b>		1) (same as routine location)	1)
		2)	2)

		3)	3)
		4)	4)
<b>May</b>		1) (same as routine location)	1)
		2)	2)
		3)	3)
		4)	4)
<b>June</b>		1) (same as routine location)	1)
		2)	2)
		3)	3)
		4)	4)
<b>July (or 3Q)</b>		1) (same as routine location)	1)
		2)	2)
		3)	3)
		4)	4)
<b>August</b>		1) (same as routine location)	1)
		2)	2)
		3)	3)
		4)	4)
<b>September</b>		1) (same as routine location)	1)
		2)	2)
		3)	3)
		4)	4)
<b>October (or 4Q)</b>		1) (same as routine location)	1)
		2)	2)

		3)	3)
		4)	4)
November		1) (same as routine location)	1)
		2)	2)
		3)	3)
		4)	4)
December		1) (same as routine location)	1)
		2)	2)
		3)	3)
		4)	4)

### **Repeat Monitoring**

A system that collects one (1) routine sample per month/quarter must collect no fewer than four (4) repeat samples for each TC+ sample found. A system required to collect two (2) or more routine samples per month must collect no fewer than (3) three repeat samples for each total coliform-positive sample found.

Number of repeat samples required per positive routine sample for your system? ☐ 3 or ☐ 4

- All repeat samples need to be taken within 24 hours of notification of a TC+ routine sample. If you cannot make this timeframe, be sure to contact EPA Region 8 as soon as possible;
- One (1) repeat sample is required to be taken from the same tap as the original sample;
- One (1) repeat sample must be taken within five (5) taps upstream of the original, and one (1) should be taken within five (5) taps downstream;
- A fourth sample (if required) may be taken anywhere in the distribution system that may help identify a potential problem.

**Take note of your routine sample locations. Can you take proper repeats based on your current choices of routine sampling sites? If not, then you will need to reevaluate your routine sites and choose differently.**

### **Monthly MCL Compliance Determination**

The monthly MCL is exceeded for this system if there are:

- More than one (1) TC+ sample in a calendar month for systems that take less 40 samples per month.
- More than 5% of the samples in a calendar month are TC+ (only applies to systems collecting 40 or more samples per month).

## **Fecal Coliform or *E. coli* Testing and Acute MCL Compliance Determination**

Any TC+ sample result is automatically analyzed for fecal coliform (FE) or *E. coli* (EC) by your lab. Any FE+ or EC+ repeat sample or any total coliform-positive repeat sample following a FE+ or EC+ positive routine sample constitutes an acute violation of the MCL for total coliform. All acute violations are situations that require you contact EPA Region 8 immediately. EPA Region 8 will determine what kind of public notification is needed and the necessary distribution requirements.

### **Routine Monitoring After a Positive Sample**

If a system collecting fewer than five (5) routine samples per month has one (1) or more total coliform-positive samples, it must collect at least five (5) routine samples during the next month the system provides water to the public. Number of routine samples required in the month following a total coliform positive:

☐ 5   or   ☐ Return to routine monitoring requirement

*Take a moment to investigate why your system had the TC+ sample result. Was there a specific issue, construction, operator error? Addressing these issues now could prevent future problems.*

### **Disinfection By-Product Rule (for systems that disinfect):**

If your system needs to conduct Residual Disinfectant Monitoring in the Distribution System for the Disinfection By-Product Rule and/or the Surface Water Treatment Rule remember that:

- The residual disinfectant must be measured at the same time and the same location as each total coliform bacteria sample
- These measurements must be conducted in the field by a certified operator (or under the direction of the certified operator)
- Residual disinfectant measurements must be written on each total coliform sample slip when it is submitted to the laboratory
- Ask your laboratory to forward this information to EPA along with the sample results.

Disinfectant used in the distribution system:

- ☐ chlorine (residual must be measured as free chlorine)  
☐ chloramines (residual must be measured as total chlorine)

### **Groundwater Rule (for those systems using only ground water sources):**

#### **Routine Triggered Source Water Monitoring Requirement**

Within 24-hours of notification that a routine Total Coliform Rule distribution system sample is TC+, the system must collect a raw *E. coli* sample from each groundwater source that was in use at that time. You will need to report this data using the "Source Water Sampling-Triggered Source Monitoring Sample Collection and Reporting Form" found on our website at:

[http://www2.epa.gov/sites/production/files/documents/GWR\\_Sample\\_Collection\\_Form.pdf](http://www2.epa.gov/sites/production/files/documents/GWR_Sample_Collection_Form.pdf)

**\*\*Be sure to also mark your GWR sampling locations on your distribution map\*\***

Has the system received EPA Region 8 approval to use a sampling site that represents more than one groundwater source? ☐ Yes ☐ No

If yes, name of sampling site: \_\_\_\_\_

Sources represented by this sampling site: \_\_\_\_\_

### **Increased Groundwater Rule Monitoring Requirement**

#### **Additional source water monitoring (for systems required to collect source water samples)**

If any raw water sample collected from a groundwater source is EC+, the system must collect a set of five additional *E. coli* samples from that same groundwater source. This sampling must be conducted within 24-hours of notification of the sample result. Additionally, EPA must be notified immediately of the EC+ sample.

### **Schematics and Maps**

#### **Map of Distribution System**

Provide a map of the distribution system showing locations of your sample sites as described in the sample siting plan. This should include sites for routine bacteriological monitoring in your distribution system and source water sites if necessary under the Ground Water Rule. You may provide this detail all in one map or in several different maps. Clearly indicate if there are multiple distribution systems and if those distribution systems are connected to each other.

**Attachment A:**

Required number of routine samples under the Total Coliform Rule

**Sampling requirements for Community Water Systems (CWS):**

<b>Population</b>	<b>Routine Samples/Month</b>
25-1,000	1
1,001-2,500	2
2,501-3,300	3
3,301-4,100	4
4,101-4,900	5
4,901-5,800	6
5,801-6,700	7
6,701-7,600	8
7,601-8,500	9
8,501-12,900	10
12,901-17,200	15
17,201-21,500	20
21,501-25,000	25
25,001-33,000	30
33,001-41,000	40
41,001-50,000	50
50,001-59,000	60
59,001-70,000	70

**Sampling requirements for NCs**

<b>Source type</b>	<b>Population</b>	<b>Frequency</b>
GW	≤1000	1 per quarter
GW	>1000	Monthly (same as CWS)
SW	All	Monthly (same as CWS)
GWUDI	All	Monthly (same as CWS)

**Attachment B:****Examples of TCR Sample Siting Plans**

- 1) Your water system is town serving 550 persons year around. One routine TCR sample per month is required. Repeating the same set of locations every quarter is acceptable:

	<b>Sample site #1</b>
<b>January</b>	Town Hall
<b>February</b>	123 Main St.
<b>March</b>	456 Center St.
<b>April</b>	Town Hall
<b>May</b>	123 Main St.
<b>June</b>	456 Center St.
<b>July</b>	Town Hall
<b>August</b>	123 Main St.
<b>September</b>	456 Center St.
<b>October</b>	Town Hall
<b>November</b>	123 Main St.
<b>December</b>	456 Center St.

- 2) You have a seasonal campground/RV park open from May to September that serves 50 persons but has 2 separate distribution loops (one for the campground and one for the RV section) Your system would only be required to monitor one sample per quarter but you should think about taking a sample from each section to ensure both loops are functioning properly:

	<b>Site address (#1)</b>	<b>Site address (#2)</b>
<b>Quarter 1 (Jan-Mar):</b>	Not open	Not open
<b>Quarter 2 (Apr-Jun):</b>	(Required) CG loop	(Optional) RV loop
<b>Quarter 3 (Jul-Sept):</b>	(Optional) CG loop	(Required) RV loop
<b>Quarter 4 (Oct-Dec):</b>	Not open	Not open



You have system that serves 7,000 customers. A total of 8 samples are required per month and should be spread throughout the month. You might opt to take a set of 4 samples on the 1<sup>st</sup> and 3<sup>rd</sup> weeks of the month.

	<b>1<sup>st</sup> week of the month</b>	<b>3<sup>rd</sup> week of the month</b>
<b>Sample #1</b>	Senior Center	Senior Center
<b>Sample #2</b>	Hospital	Hospital
<b>Sample #3</b>	789 Old Hwy	789 Old Hwy
<b>Sample #4</b>	123 Main St.	123 Main St.

With all of these examples, you will in addition need to submit a map of your distribution with these sites marked. This will give a visual representation of your site selection and will assist in adjusting these selections as necessary.